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E-COMMERCE IN CHINA: TAOBAO VILLAGE PHENOMENON AND ITS
CONTRIBUTION TO SUSTAINABLE DEVELOPMENT

NIKLAS LÜCKE

Work project carried out under the supervision of:

Professor Dr. Richard Hardiman

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Abstract

The rapid rise of e-commerce in China and the success of the e-commerce platform taobao.com have enabled the emergence of a unique cluster phenomenon called “Taobao Village”. This work project delivers a thorough overview of the phenomenon including its backgrounds. Further it analyzes how the phenomenon contributes to sustainable development using the UN Sustainable Development Goals as a framework. It is found that the development of Taobao villages underlies some specific prerequisite factors. The phenomenon seems to contribute to important goals and works against some negative national developments. Finally, the work hints towards the tremendous impact and potential of digitalization.

Keywords: E-commerce, China, Alibaba, Taobao Village, Cluster, UN Sustainable Development Goals, Sustainable Development

Introduction

We live in the era of digital economy, where companies that do not utilize electronic connections or the internet are becoming more and more a rarity. E-commerce is omnipresent and will soon account for every fourth retail sale worldwide (Statista 2019a). International organizations like the United Nations, the Organisation for Economic Co-operation and Development, the World Trade Organization and the World Economic Forum have recognized this development and agree that it will play a major role in shaping the future. In the context of current global issues, evolving around people, planet, prosperity peace and partnership, as defined in the United Nations Agenda 2030, these organizations urgently call for inclusive growth and sustainable development of the digital economy. Additionally, societal stakeholder groups such as the general public and academics, or more recently the younger generations are putting pressure on nations and enterprises to actively commit to sustainable development.

Within a timespan of about 20 years, the People's Republic of China (hereafter referred to as China) has evolved to a global force in digital technologies. The McKinsey Global Institute (2017) reports, that the country is responsible for more than 40 per cent of global e-commerce transactions and home to 34 per cent of global unicorns, privately held start-up companies with a valuation of over USD 1 billion. The Alibaba Group, the country's leading e-commerce service provider has managed to set up a digital economy ecosystem consisting of almost 30 subsidiaries and affiliate companies that mainly operate platform-based, data-driven business models to offer complementary, integrated services. The success of one specific Alibaba business, the domestic core commerce marketplace taobao.com has resulted in the transformation of many villages to e-commerce hotspots and facilitated the emergence of a clustering phenomenon named "Taobao Village".

Besides Alibaba and affiliated entities which mostly subordinate Taobao Villages to e-commerce as a whole, a number of scholars have studied the phenomenon from different perspectives. Jiaqi et al. (2019) have conducted the first econometric study on determining factors for the formation of Taobao Villages. Research carried out for the German Friedrich Ebert Foundation by Fan (2019) concentrates on the emergence and on the social implications of Taobao Villages. Wei et al. (2019) have studied the development path and the organizational structures of Taobao Villages in one province (Zhejiang). Qingyi and Zhang (2015) have investigated how e-commerce can provide a sustained competitive advantage for growth-oriented enterprises such as Alibaba and Taobao. Xubei and Chiyu (2019) assessed the relation between e-commerce participation and income growth in Taobao Villages for the World Bank Group. In a collaboration effort by the World Bank Group and Alibaba Group (2019) the overall experience of e-commerce in China has been outlined. Existing studies focus primarily on one specific geographical region or county, individual Taobao Villages, or industry sectors. In accordance with most existing publications, this report includes the examination of the Taobao Village Phenomenon as such. Xiheng et al. (2019) for the Center for International Knowledge on Development, an independent Chinese institution with government affiliation have been the first and only publishers to examine, in a similar manner the impact on sustainable development of the digital economy with the case of the Alibaba Group. However, no publication draws connections to sustainable development and examines specific impacts of Taobao Villages using the framework of the Sustainable Development Goals. Therefore, this work aims to fill this research gap by identifying impacts of Taobao Villages and linking them to seven specific, corresponding goals of the Agenda 2030. Subsequently, the following research question finds consideration: What are the impacts of Taobao Villages and what is their contribution to sustainable development? To analyze that, is first necessary to outline the state of e-commerce on a global level and focus on the development progression and its specialties in China. This

includes a short technological background of electronic commerce, its global market dimensions and dynamics as well as its potential. China specific, a more detailed market analysis is conducted including evolution, market dimensions and dynamics, consumer profile, relevant sectors, geographical distribution and prerequisite factors for e-commerce development. Secondly, a closer look at the Alibaba Group and the Taobao Marketplace to understand the e-commerce ecosystem that facilitated the emergence of the Taobao Village phenomenon is fundamental. This section includes the description of complementary services, in the form of Alibaba affiliate businesses that aim to tackle issues that hinder e-commerce development, especially in rural areas. Thirdly, the Taobao Village cluster phenomenon is thoroughly examined using the same scheme as in the previous sections considering relevant definitions, dimensions, occurrence and whereabouts, promoting factors and villagers' profile in Taobao Villages. In the fourth step, the UN sustainable development framework is used as a basis to analyze and discuss the impact of Taobao villages on sustainable development, including a short review of the Agenda 2030, a selection of seven relevant SDGs.

Data Sources and Limitations

Due to geographical constraints, language barrier and the inaccessibility of a sample group for primary data collection, sources of this work project are exclusively secondary. The paper relies on 3 different categories of sources which are used in combination throughout all parts of the work. Firstly, data and statistics including administrative government data of various ministries recited from relevant database or media channels to help empirically undermine statements about the dimensions of e-commerce in general and in China. Secondly, data released by Alibaba Group and affiliate entities, as well as collaborative publications with national and international external institution and companies or universities. These include Alibaba's transaction data, financial and ESG/Sustainability reports and data published by its research institute, AliResearch or the Alibaba Research Center for Rural Dynamics. External

collaborators include the World Bank Group, Digital Economic Forum, McKinsey and Company and the Center for International Knowledge on Development. These sources are mainly used to deliver an overview about the Alibaba digital economy, the Taobao Marketplace and the Taobao Village Phenomenon. To some extent they are also used for the implications on sustainable development. Thirdly, research data from purely external sources with no affiliation to Alibaba. This includes citations from relevant journals like the Journal of Rural Studies, China Economic Review, and Cities as well as organizations such as the World Trade Organization, OECD and the German Friedrich Ebert Stiftung. These are used to complement the other two categories of sources with external verification. Reports from the United Nations and the United Nations Conference on Trade and Development help to frame the sustainable development integration. This combination of data sources allows a look on subject from different perspective with the aim of a holistic view.

Some data limitations apply for the underlying research to this work project. Firstly, both the emergence and conceptualization of Taobao villages and the UN Sustainable Development Goal framework are fairly new developments. This signifies that research is its beginning phase and long-term implications are still outstanding. Secondly, an inconsistency in the publication of the annual Research Report on Taobao Villages in China has been noticed. Alibaba's own research institute AliResearch has only made available reports from 2015 and 2016. More recent data will be recited. Thirdly, the limited empirical research data from developing countries and in this specific case the inaccessibility of sources in Chinese language have narrowed the pool of research material.

Technical Background on E-commerce

The concept of electronic commerce, or e-commerce was introduced by scholars in the 1970s and its integration into the business world chronologically overlaps with rise of the personal

computer to a mass-market consumer electronic device around the same time. Wigand (1997) refers to e-commerce as “any form of economic activity conducted via electronic connections” and identifies the market coordination as all forms shared peculiarity. E-commerce relies on significant innovations of information and communication technology such as the concept of business based on electronic data interchange (EDI), the adoption of electronic mail and the Internet, or more recently cloud computing, and evolves with technological advancement. E-commerce service providers predominately operate data-driven, platform-based business models with new value creation chains that are disruptive to traditional markets. They enable direct connectedness between buyer and seller in all types of business relations (C2C, B2C, B2B); are both a direct and indirect source of job creation; offer lower market entry barriers, lower transaction and commercial cost than traditional offline and paper-based commerce. The range of possible fields of application is yet to be fully explored, but already it is an essential component of the customer service and product distribution sectors, the tourism industry, the financial world and many more. (Wigand 1997)

E-Commerce Globally and in China

Despite the rather stagnant global economic growth after the 2008 financial crisis, e-commerce was thriving and has grown to a multi-trillion-dollar industry. (Statista 2019) reveals, the total retail e-commerce sales volume worldwide amounted to approximately USD 3.5 trillion in 2019. It has more than doubled in the last 5 years and is projected to reach the milestone of 20 per cent in share of total global retail sales by 2022 (see Appendix 1, 2). That means every fifth sale will happen online. The global internet penetration rate of currently 59 per cent indicates that the e-commerce business has enormous dormant potential for the future ahead. (Statista 2020e)

As the United Nations Conference on Trade and Development (2019) state in their annual Digital Economy Report, the global geographic distribution of development of the digital economy around e-commerce is greatly uneven. The Asia Pacific region is outpacing the rest of the world's regions in terms growth. Besides fast-growing markets in India and the Philippines, especially China's digital evolution is outstanding and of increasing scholarly interest. With a population of around 1.5 billion people, China has a scale advantage compared to most other countries. Its base of internet users is significantly larger, even though its internet penetration rate of 64.5 per cent is only marginally higher than global and regional (East Asia 63 per cent) averages (Statista 2020e). Although being a latecomer to e-commerce in 2000, the country's sector is now the largest worldwide and with a transaction volume of about USD 5 trillion (CNY 35 trillion) in 2019, accounted for more than 40 per cent of global e-commerce (Woetzel et al. 2017). The Digital Economic Forum et al. (2018) state that China is embracing the wave of global digitalization and is on a unique path of developing its digital consumer industry ecosystem. Ranked first on the Digital Consumer Index and second on the Global Digital Economy Index, the country is on its way up in the ranking of GDP per capita by country. Internet companies such as e-commerce platform and service providers have utilized technology to meet individual customer needs of a massive base of online shoppers via direct communication, which helped them to expand rapidly. Not all industries in China are on the same stage of maturity and as comparable to numerous developing countries, some industries lag behind while others flourish. The largest sectors in Chinese e-commerce are fashion; toys, hobby & DIY; electronics & media; food & personal care; furniture and appliances. In 2018, a total of 33.5 million employees were engaged directly or indirectly with e-commerce (Statista 2020b).

Within the country the geographic distribution of e-commerce activity shows that the conurbation of developments is located in the eastern half of China, namely in coastal provinces

like Guangdong, Fujian, Zhejiang, Shanghai, Jiangsu, Shandong, Hebei, and Tianjin which are economically stronger and further developed. Xubei and Chiyu (2019) find, the development of e-commerce participation in rural areas is growing above national average and contributed 20 per cent to the total online retail transactions. However, they state that a rural-urban gap in China is observable in all regions and all aspects of development. For example, the annual disposable income per capita of residents shrinks by half from the most urbanized eastern regions to the mostly rural regions in the west of the country. (Statista 2019b)

Development of e-commerce underlies some specific prerequisites or analog complementary factors to digital development. These have been classified into three major sets of conditions in a readiness checklist for e-commerce by the the World Bank Group and Alibaba Group (2019). Relevant factors that have been observed China include:

- i. *Facilitating Business Environment*, meaning governmental incentives that go beyond traditional paper-based business and target e-commerce specific requirements. These can be direct subsidies, education and training incentives, enabling logistic expansion, online service and incubation mechanisms, and regulatory measures and laws that streamline the online economy.
- ii. *Basic infrastructure and logistics* networks, implying access to financial services and a mobile payment system, the access to the Internet and e-commerce platforms. And access to roads connected to a logistic network, business facilities and utilities.
- iii. *Human capital*, implying the presence of labor with the ability to use computer related hardware and software including the Internet. The presence of an entrepreneurial mindset, willingness to pursue new opportunities and take risks. The ability to be highly adaptable and flexible in a fast-paced digital economic environment and skill to develop

digital products, or market physical products online. Lastly, the acceptance and capacity for professional training and business incubation.

Alibaba Group – The Platform Provider

The Chinese e-commerce sector is dominated by the online pioneer and commerce provider Alibaba Group Holding Limited, one of the country's three online giants besides Baidu and Tencent. Since established by Jack Ma and his team in Hangzhou 1999, Alibaba has evolved to a diverse, international conglomerate operating its own digital economy with a broad service ecosystem built around but not limited to e-commerce. Alibaba is often compared to its fellow online commerce giant, the US American company Amazon.com Inc., with whom it shares its consumer centric and platform-based, diversified nature. However, significant differences in delivery, marketing and payment strategies as well as corporate culture and values point out that Amazon operates primarily as a distribution company with little minimal interaction with buyers and sellers, while Alibaba acts as a middleman and service provider to sellers and buyers and promotes high interaction (Cappelen et al. 2020; Farina et al. 2020). Alibaba envisions to create the future infrastructure of commerce and delivers a digital all-around package to improve efficiencies of merchants, brands and other types of businesses and consumers alike by driving engagement and growth, innovating continuously, and empowering businesses to optimize. The wide span of services offered by the group's businesses covers multiple online and mobile commerce platforms for domestic and global retail and wholesale trade; consumer services like a grocery retail chain, a video platform, and an on-demand food delivery and local services platform; a smart logistics infrastructure network, a monetization platform, and technology-driven financial services amongst others (see Appendix 3). Many of its businesses are market leaders in their respective segments. In 2020, for the first time the gross merchandise volume (GMV) of the Alibaba digital economy has passed the mark of USD 1 trillion, most of which was generated domestically. The corporate culture is centered around espousing small

businesses and allowing each participating entity in their digital economy to prosper. In line with the countrywide trend of rural e-commerce participation, over 70 per cent of new annual active consumers are located in less developed areas of the country. (Alibaba Group 2020a)

As Fan (2019) has identified in a report for the German Friedrich Ebert Stiftung, there are five major reasons behind Alibaba's success. Firstly, the company is an aggregator of information about supply and demand which allows it to oversee market occurrences. Secondly, the group has proved to pay attention to local peculiarities such as language, trends, and local needs depending on the level of development. Thirdly, the variety of complementary services with platform-based business models has allowed the company to achieve a high diversification of revenue sources. Lastly, an initial free membership phase has built a large base of registered users that helped to leverage overall growth.

Taobao Marketplace – Number 1 E-Commerce Destination

As an extension of Alibaba's philosophy of allowing the small-scale retailers to benefit from E-commerce as opposed to being marginalized by large scale operators, the Taobao Marketplace, taobao.com was launched as a business of Alibaba in May of 2003. It belongs to the domestic retail commerce businesses of the group, the core commerce that makes up 65 percent of annual revenues (Statista, 2020). On the platform, sellers can set up their own individual virtual shops where they market their products, while buyers have their highly personalized feed with shops and products, around the clock live streaming interaction and engaging advertisements. Entities operating on taobao.com are predominately micro businesses or individuals, small and medium sized businesses (SMEs) who engage in C2C or B2C business relations. Taobao.com has evolved to China's largest mobile commerce location and is often compared to the US American platform and global C2C e-commerce leader eBay Inc. Taobao differs from eBay in the sense that: (i) it serves a broader consumer base due to high mobile

usage, (ii) has developed platform-integrated consumer interaction and payment services (Alitalk and Alipay) at an early stage, (iii) offers flexible transaction prices and more actively communicates with its merchants and customers. (Fungáčová and Weill 2015). Further, instead of generating most of its revenues via commissions Taobao utilizes advertisement for 80 percent of the revenue generated comes from advertisements. Its services are predominately used via smartphones. The characteristics resemble those of a social media platform which is why Taobao has gathered a such large social community that is a constant source of new trends.

As a pioneer in the market, Taobao anticipated the potential that rural areas have for platform-based services and started inclusive measurements. Besides labor intensive activities like launching the so called Taobao University Program to help provide basic e-commerce training, sending out graduates to villages to promote the program and, setting up rural service centers, the company intensively worked on financial and logistic inclusion. As mentioned in the readiness checklist for e-commerce, some basic requirements like a bank account and connection to a logistic chain are mandatory for the success of e-commerce. Woetzel et al. (2017) find, that compared to fellow BRICS countries, the use of formal bank accounts and credit is less common, especially in lower income regions in China. For the most part this financial exclusion is at own will since it is commonly preferred to reach out to friends and family for credit. Due to geographic constraints rural areas are often not economically integrable to logistic networks. As stated by AliResearch (2017), on average a parcel travels around 1 thousand kilometers from seller's to buyer's door. Both challenges have been approached with further technological innovation in the form of application supported services by Taobao and its parent company.

In an effort to address financial inclusion and deliver inexpensive, secure financial customer solutions, the Alibaba Group extended its service portfolio and introduced the affiliate business

Ant Financial Services Group. Ant Financial, much like the majority of Alibaba entities, operates a digital-technology-driven business model. It is building an ecosystem of complementary financial services that are credit-system-based. To optimize user experience, technologies like mobile internet, big data, biological recognition, artificial intelligence, and cloud computing are utilized. Ant Group recently attempted the world's largest IPO with a valuation of USD 35 billion which was suspended by financial regulators. Earlier this year, a new set of rules regarding financial holding companies was introduced under which Ant no longer meets disclosure requirements. The Chinese government has explained that with the need for balance between financial innovation and strong regulations. In order to meet the new regulations and reattempt the IPO, Ant potentially has to adjust its business model. In corporation with Alibaba, the following companies have been set up independently but with affiliation to Alibaba. (Batson 2020). The following businesses have been set up independently but under the umbrella of Ant Group and in affiliation with Alibaba.

Alipay – and the corresponding mobile application were introduced to increase payment convenience of transactions between seller and buyer. It is based on cloud computing technology infrastructure and has proven to process ultra-high volumes of requests. Alipay has been integrated as the payment mean for the entire Alibaba Group service portfolio. Paying by scanning a QR code via a mobile app has become reality not only in urban areas of China. Alipay has one competitor worth mentioning, WeChat, the multifunctional mobile app of the fellow internet giant Tencent. WeChat has recorded an active user base of around 900 million in the last years and built an ecosystem including financial services similar to Alipay. However, the payment market share, variety of supported features and e-commerce penetration is higher in Alipay's app since its platforms only support Alipay as a means of payment. (Alibaba Group 2018). Ultimately, both Alipay and WeChat allow checkouts on most Chinese websites and

contribute with their services contribute to financial inclusion, and by competing with each other increase efficiencies of customers.

MYbank – an internet-based bank was launched to decrease funding expenditures for micro and small businesses. The bank offers entrepreneurs a loan service with minimal complexity and time effort. The product is called “310” and is set up in the format of a 3-minute application phase, a 1-second approval and grant phase with 0 manual interference.

Yu'E Bao – a mutual fund was issued to increase wealth management options for ordinary families. The money market instrument requires a minimal investment of CNY 1 and offers same-day acquisition and pay off. Yu'E Bao is especially utilized by low-income individuals and households and young people that value its low entry barriers and risk, and liquidity as well as its ease of use and commerce-oriented functional design.

Zhima Credit – was created as an addition to the traditional credit reference system. In China, the majority of the population does not have recorded credit references and is therefore illegible to apply for loans at financial institutions. Zhima Credit is supported by big data and acts as guarantor for loan security as it covers clients with no or little credit history. Zhima Credits improves efficiencies in i.e., car or house rentals and helps decrease nonperforming loans, defaults and frauds at financial institutions.

With initiatives and corporations, the Ant Financial Group is popularizing the use of insurance services as a conventional need. The group offers knowledge and capacity sharing to insurers and helps them optimize their services tailored to a variety of different insurance needs. By creating an all-around service portfolio for financial matters of any kind and offering learning courses through Taobao universities Alibaba is helping to overcome the problem of financial inclusion. It cannot be said which approach is the most dominant, but assumingly the

encouragement by friends and family who are satisfied users of Alibaba services can be successful in getting rural residents to set up a bank account.

In the issues of logistic inclusion for remote areas, Alibaba works in close partnership with regional and local governments to promote infrastructure and logistic linkages of rural areas. The initiative Rural Taobao was launched 2016 with the Ministry of Industry as a pledge of large investments and the establishment of county and village service centers. Alibaba affiliate Caidiao Smart Logistics Network Limited is operating these service centers to offer a two-step rural delivery. Parcels are delivered to county centers in a first phase and delivered to village centers in a second phase, combining express delivery and local delivery services. Both individual couriers and local courier companies take over the delivery from and to the village centers. Rural Taobao encompasses the establishment of 1,000 county and 100,000 village service centers by 2022. As the group records in its ESG Report, that over 730 county service centers (300 impoverished counties) and 30,000 villages service centers have been set up. (Alibaba Group 2018; 2020b; Cheng et al. 2017)

The Taobao Village Phenomenon

The favorable circumstances for Taobao in the digital environment in China which have been described in the earlier paragraphs, enabled the appearance of a unique e-commerce, service and manufacturing cluster phenomenon in rural and urban areas. Clusters are nothing new in China. Widely known as “the factory of the world”, it is home to numerous traditional industrial manufacturing clusters for clothes, textile, shoes, furniture, toys, stainless steel but also agricultural processing, auto industry and electronics, dependent on local sources and expertise. Cities referred to as Socks City (Datang, Zhuji) or Sweater City (Haiyang, Shandong) are famous in China. Another example of a well-known commodity hub is Yiwu, Zhejiang. In collaboration with Alibaba, the city is set to become a Digitized Comprehensive Bonded Zone¹

under the electronic World Trade Platform (eWTP) framework (Alibaba Group 2020c). The development of such clusters is either initiated by enterprises e.g., foreign direct investments, or product of efforts by public institutions. Driving factors include geographical proximity, locational interdependence, location pattern similarity, sectoral specialization, technological similarity, and production and marketing interrelations. Clusters benefit from economy of agglomeration. (Jankowiak 2017; Palacios 2005)

To establish a strategy for further market penetration, Alibaba Group research institute AliResearch evaluated field data from domestic e-commerce hubs and first conceptualized the development under the definition “Taobao Village”. Villages are labeled as such if they meet the following requirements: 1) villagers engage in e-commerce primarily via the taobao.com platform, 2) the combined annual transaction value of all village online stores accounts to a minimum of approximately USD 1.6 million (CNY 10 million), 3) 100 or more online stores were started by village inhabitants, or a minimum 10 per cent of all households within the administrative village² engage in e-commerce. (Anthony and Li 2017)

In a number of different regions, the progression of e-commerce has quickly evolved to regional scale and the emergence of larger clusters named “Taobao Towns” began. This describes an administrative town, township or street that claims three or more Taobao villages. Even further, “Mega Taobao Village Clusters” describes the formation of 30 or more neighboring Taobao villages within an administrative county. (Alizila 2016)

The annual Taobao Village Summit, the 8th edition was held in Suning County, Hebei Province earlier this year, is facilitated for stakeholders to connect, share best practices, exchange knowledge and honor special achievements or milestones. The subsequent annual Research Report of Taobao Villages in China empirically records the progression of the phenomenon. Its publications in English language are, however, inconsistent. According to available data from

combined sources the number of Taobao villages as of this year stands at 5.425, close to 1 per cent of all administrative villages countrywide and grew from 212 in 2014 to 3.202 in 2018. The number of active online shops per Taobao village climbed from 70 to 660 in the period from 2014-2018. In 2017, a total of 2,118 Taobao villages and 242 Taobao towns existed. Of the Taobao villages, 400 were located in provincial-level impoverished counties and 33 in national-level impoverished counties³. The top three Taobao village clusters of that year were: Yiwu, Zhejiang with 104 Taobao villages, top selling product petty commodities; Wenling, Zhejiang, with 75 Taobao villages, top selling product shoes; Caoxian County, Shandong with 75 Taobao villages, top selling product costumes. Three more cities in China had more than 50 Taobao villages and all of the top eleven cities had more than 40 Taobao villages. Only five different provinces are represented in the ranking of the largest clusters. The geographical distribution of Taobao villages in China goes hand in hand with the countrywide e-commerce activity distribution. The first Taobao villages were located exclusively in the south eastern coastal regions of the country. The development expanded to the larger eastern region of China, but occurrence of Taobao villages decreases significantly further west on the map. In total Taobao villages occur in 25 different provinces out of a total of 31 provinces. In 2018, only a little more than 100 Taobao villages were found in the central and western regions combined and just thirteen in the north east region of the country. There are no Taobao villages in the provinces Heilongjiang, Inner Mongolia, Gansu, Qinghai, Tibet and Xingjiang, (Tang and Zhu 2020; Xubei and Chiyu 2019; Fan 2019; Wei et al. 2019)

It goes without saying that the factors which enable e-commerce development in the first place: human capital, basic infrastructure and logistics and a facilitating business environment, also play a role in the likeliness of the formation of Taobao villages. The very first econometric analysis of determinant socioeconomic factors for the formation of Taobao villages has confirmed and concretized this fact. Regarding human capital, the authors suggest a positive

correlation of education and Taobao village formation. A higher level of general education within an administrative village or a high number of inhabitants with secondary education increase the likeliness of the formation. Further, also promoting the likeliness is a higher number of villagers that possess the skills necessary for e-commerce e.g., knowhow in the use of a smartphone or computer, knowhow in accessing the internet and navigating on e-commerce platforms, have basic entrepreneurial understanding. A negative relation was found for credit support for non-e-commerce businesses. If credit support is granted to enterprises outside of e-commerce, the likeliness of Taobao Village formation decreases. This applies also if credit support is granted to e-commerce businesses in the same area because the chances of people starting their own business online decreases. (Jiaqi et al. 2019)

Migration was also found to be of influence in the formation of Taobao villages. Urban areas in China are commonly known to be destinations of labor migration on a large scale. The variety of opportunities and chance to find better work attracts millions of people, causing a rural-urban gap. Especially young people who have secondary education commonly migrate to urban areas and cities in hope of jobs that are less physical and better paying than jobs in their home villages e.g., farming. Lin (2019) found that the formation of Taobao villages is influenced by migration of young talent. Unlike older migrants who are generally less skilled, young migrants have all the necessary skills to be successful in e-commerce and arguably already engage in e-commerce on the buyer side. A so-to-say reverse migration trend is being observed. Young ambitious talents who have moved to urban areas migrate back to less urban or rural areas, carrying their new acquired e-commerce knowhow, often back to their hometowns, but also to new regions to start an e-commerce business. The closeness to family, a familiar environment and status play important roles, but also cost benefits e.g., lower cost of rent, labor and taxes influence young people's decision.

Every Taobao village is linked to a mobile communication network and solid broadband internet as a mean to operate. Most of the villagers make use of the internet, however of those who do so, close to 95 per cent had secondary education or vocational education or hold a college degree or a university degree. Of those villagers who had primary school education, only around 30 per cent use the internet. And of villagers who had never been to school or did not complete primary schools, the majority, around 90 per cent do not use the internet. The smartphone is the single most widespread device to use the internet in Taobao villages. Over 95 per cent of villagers who use the internet, access it via smartphone. Before Tablet devices and Laptops, the Desktop or personal computer is the second most used device. Despite the fact that Taobao villages revolve around e-commerce, business related internet usage is not the most popular purpose. The internet is more often utilized by people to consume news, access entertainment and do online shopping and online learning.

As not all households within a Taobao village engage in e-commerce, there are differences between so-called e-households and non-e-households. Non-e-households in Taobao villages might be occupied in e-commerce complementary occupations such as production or delivery or might not participate in e-commerce at all. The head of the family of an e-household potentially has experience with self-employment or work in urban areas. E-households are noticeably younger (on average approximately 10 years), tend to have slightly larger families than non-e-households and record lower risk aversity. As mentioned, they are seldomly non-migrant family households. (Xubei and Chiyu 2019)

Taobao Village – Sustainable Development Goal Analysis

In 2015, all 193 member states of the United Nations (UN), including China have pledged their commitments to achieve new goals for a better, more sustainable and resilient world by the year 2030. The 17 Sustainable Development Goals (SDGs) succeed the 8 Millennium Development

Goals (MDGs) for the period of 2000 until 2015 and contain some of their contents which have only been partly achieved. The SDGs were presented by the UN General Assembly as part of the UN Resolution *2030 Agenda*, which lays out the strategies to tackle urgent problems concerning humanity and the planet. The report is based on the three-dimensional concept of sustainable development in which economic, environmental and social issues are cared for in a balanced way. An ambitious action plan was brought forward two years later containing 17 broadly formulated, interdependent goals with 169 specific targets and deadlines, as well as 231 indicators for continuous monitoring. Every goal has around eight to twelve linked targets which each have between one and four indicators that are categorized into Tier one, two, or three indicators depending on their level of global applicability and comparability. Indicators are subject to change and continuously under development and review. The central challenge on the path to transform the world for the better is to eradicate poverty, including extreme poverty in all parts of the globe. E-commerce overall surely impacts every single goal and target of the SDGs in a direct or indirect way. The UN notes that multi-stakeholder and joint collaboration approaches work best in efforts to transform our world. Important levers are governance, economy and finance, individual and collective action as well as science and technology. (Independent Group of Scientists 2019).

The following analytical section aims to identify known impacts associable with Taobao villages and link them to specific SDGs of the Agenda 2030, selected by the author on the basis of underlying research overlaps with the sub targets of each goal. In focus of this analysis are 7 of 17 goals, namely: goal 1 no poverty, goal 4 quality education, goal 8 decent work and economic growth, goal 9 industry, innovation and infrastructure, goal 10 reduced inequalities, goal 11 sustainable cities and communities, and goal 12 responsible consumption and production.

Goal 1 – End poverty in all its forms everywhere.

The first goal represents the central challenge of the whole Agenda 2030 and is arguably the most important goal for humanity. It is also ranked high on the policy agenda of the governing party of China. The worst form of poverty, extreme poverty affects people, mostly in rural areas who live with less than approximately USD 350 (CNY 2.300) per year. This number has declined from 462.24 million in the year 2000 to 5.51 million in 2019. Observed by region in 2019, extreme poverty is almost eradicated in eastern China. The central and western, less developed regions accounted for a total of 5 million people suffering from extreme poverty (Statista 2020a; n.d.). Research from all three data sources point towards a positive relation between e-commerce participation in Taobao villages and income growth. The increasing occurrence of Taobao villages in national and provincial-level poverty-stricken and impoverished counties supports a positive contribution (Liang et al. 2015). Taobao villagers who belong to the underbanked have a better chance to escape the poverty trap because of the financial inclusion efforts that have been mentioned before. Cheng et al. (2017) highlight, that inclusive and sustainable poverty alleviation is best achieved with empowerment, help to self-help and a multi-stakeholder approach. Villagers have passed the poverty line if provided with opportunities to gain knowledge and engage in real business through e-commerce, rather than by simply being provided monetary help. No impact of Taobao villages has been found to be working against poverty alleviation in China.

Goal 4 – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

The Chinese education landscape builds an interesting case in itself, that would be worth studying. While the Ministry of Finance reports that the public education expenditure has been steadily increasing since 2010 and amounted to around USD 535 million (CNY 3.5 billion) in 2019, the Ministry of Education recorded decreasing numbers of elementary schools, secondary

schools, junior and senior high schools in the same period. Only the number of pre-schools rose significantly in the last ten years and the number of public colleges and universities rose steadily but in a very small proportion (Statista 2020c). This paradox suggests that there is no correlation between Taobao villages and improved quality, public education. However, there are efforts and investments led by Alibaba initiatives in Taobao villages, to provide vocational training and individualized technical e-commerce and entrepreneurial training e.g., Taobao University, Alibaba Business School, Alibaba Global Course Series. They are ultimately meant to help the enterprise increase participation rates but also provide and promote learning opportunities regardless of educational background. The impact towards sustainable education development and this goal is positive but very limited. It is thinkable, that Taobao Villages could even contribute negatively if pupils or students decide to drop out and leave the education system to actively engage in e-commerce.

Goal 8 – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Chinese national accounts reveal, economic growth has significantly slowed down compared to the first ten years of the century. Since 2010, the real GDP growth rate has fallen under the ten per cent mark and is projected to slim down to five per cent in the next five years, but the share of global GDP has increased to 17.39 per cent in 2019. (Statista 2020f). Especially, traditional industries such as manufacturing, investment and export are not performing very well. This is partly explained by the ongoing international trade disputes primarily between the US and China but can be expected as the economic development begins to plateau. McKinsey and Company suggests that the new driving economic force are young, free-spending individuals who live lower-tier cities (Ho et al. 2019). Taobao Villages contribute through innovation for alternative industry structures and are reshaping traditional ones in the sense of platformization and digitalization. They show that even in times of slowed economic growth,

villagers are given the chance economically prosper. The fast expansion of the phenomenon and the fact that its spectrum had to be enlarged to Taobao towns and Mega towns. There has been no known case of a Taobao Village that has lost its status, or of a reversed development suggesting that the growth has been sustained thus far. It is conceivable that the growing share in global GDP partly stems from the contribution of Taobao villages. The phenomenon seems to contribute to economic growth in an inclusive manner however, it could be argued that villagers who choose to continue to live traditionally, are too old or cannot adapt digitally, may be excluded. The significant age difference for e-households and non-e-households also hints toward exclusion of some groups. The National Bureau of Statistics of China has recorded an employment peak in 2017. Since then, the number of employed people is declining. At the same time, the distribution of workforce by economic sector reveals that the agricultural and the industry sector are losing jobs while the service sector is accumulating more employment positions. (Statista 2020d). This shift to a service driven economy is a result of economic growth. Taobao Villages seem to work towards inclusive employment opportunities. Besides direct jobs for online shop owners, they open job opportunities, through forward and backward job linkage in production and logistics to people including the less skilled, who would potentially have migrated for work. Ma (2020) states that in the fiscal year 2020 alone, a total of around 8.3 million employment positions for rural villagers in Taobao Villages. Undeniably, a positive contribution to this sustainable development goal is recognized.

Goal 9 – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

As described earlier, the platform provider Taobao and parent Alibaba have set up a digital infrastructure including financial infrastructure and delivery infrastructure. However, private companies cannot build roads or other means of transport infrastructure. Government incentives and social investments play an important in facilitating infrastructure development. In the

period from 2013 to 2018, the central government has allocated around USD 61.2 billion (CNY 400 billion) and raised another USD 245 billion (CNY 1.6 trillion) to build 1.27 million kilometers of roads to include connect remote areas to infrastructure networks. (Xinhua 2018). Taobao villages that receive individual support are an additional driver for infrastructure developments across China. Further, Taobao Villages have the potential to foster innovation since individual entrepreneurs or SMEs compete against each other via the Taobao platform on a greater scale.

Goal 10 – Reduce inequality within and among countries

Taobao Villages reduce difficulties and create opportunities for SMEs to participate in markets that had been inaccessible before. Barriers of participation such as age, culture or physical disabilities are removed so disadvantaged groups or semi-skilled workers find empowerment and equitable opportunities to start their own business. In 2015, a disabled person who created hundreds of jobs for others via his e-commerce business was among the top e-entrepreneurs. As stated before, migrant families also represent an important factor of the phenomenon. Gender inequality is also confronted, as women are a huge part of the social community of Taobao and play a major role in social trend setting which is why they find empowerment in the phenomenon. It was found that in 2015, more than six million women have started an Taobao online shop (Cheng et al. 2017). The Taobao village phenomenon arguably contributes to an inequality among countries as it supports China's leading position in e-commerce. Further, it cannot be neglected that Taobao villages that become more successful than other villages in the same county or region might create income inequality within that county or region. The relating measure, the Gini index of China 2019 is 46.5 depicting a quite unequal distribution (Statista 2020f).

Goal 11 – Make cities and human settlements inclusive, safe, resilient and sustainable

In reference to the Taobao Village Research Report of 2017, Fan (2019) reports that inhabitants of Taobao villages enjoy better living environments. First, fewer criminal cases are recorded in Taobao villages e.g., in Heze, Shandong Taobao villages had only half as many cases as the city on average. Further, it is reported that family harmony is higher and relationships between in-laws are better. Also, in Taobao villages, unlike villages dependent upon a migrant workforce for income, close to no elderly or children are left alone because caring family members have to migrate to cities for work. Social security is thereby enhanced in Taobao villages. Because of the high degree of digitalization, it is thinkable that a higher risk of cyber-crime and cyber insecurity can be a threat.

Goal 12 – Ensure sustainable consumption and production patterns

Being the largest emitter of CO₂ and regarded as “the factory of the world”, issues of sustainable consumption and production are of great relevance in China. Much like in traditional production, in Taobao villages products with increasingly shorter life cycles are produced at low-cost and in mass. This hints towards a negative impact on the establishment of sustainable patterns. However, Taobao villages are more flexible and quicker to react to consumer behavior changes and can effectively adjust. They possess the technological capacities to catalyze trends and accelerate the spread. The China consumer report of 2020 describes the emergence of trends that apply to Chinese consumer behavior and will play a role in the future. Consumers have increased price and quality awareness as they are becoming more frugal, savvy and discerning depending on disposable income. Generally, the Chinese consumer is also becoming more health conscious. Lastly, the demand for high-end domestic products and sophisticated travel are on the rise. Arguably, consumer demand and consumer behavior will ultimately dictate the path for production. Taobao villages are in a position to

embrace these changed behaviors, but it is questionable if they are or will become drivers of sustainable consumption and production. (Ho et al. 2019)

Conclusions

This study touches on the research domains Taobao villages and sustainable development. It delivers valuable insights for academic researchers, mainly for those outside of China who are interested in the topic. The work project leads to the following conclusions: Firstly, the development of the Taobao village phenomenon underlies some specific prerequisite circumstances, without which it would not have emerged. The important role of public-private partnerships in the enablement of the phenomenon has to be kept in mind for possible imitation by other countries or enterprises alike. Second, the Taobao Village phenomenon seems to work against some major negative national developments in China and therefore contributes to sustainable development. It has shown that it can be effective for poverty alleviation, sustaining economic growth and inclusive employment and fostering innovation. Thirdly, this work indicates how impactful digitalization can be. The Taobao village phenomenon has shown that enabling people to participate in the economy via digital solutions can make a change on a global level.

Finally, some remarks about limitations to this study. Firstly, this work provides only an overview on the subject matter to raise awareness about the Taobao Village development and its contributions sustainable development for entities outside of China. Further research could examine in-depth how every single SDG is affected by the phenomenon of Taobao Villages. Secondly, although there are certainly implications on environment related goals, these do not emerge from the analysis because there is no known data base. Thirdly, given the fact that e-commerce and especially the Taobao village phenomenon are both relatively new concepts, the long-term impacts are speculative and yet to be supported by empirical research data.

Notes

1. A comprehensive bonded zone in China is a designated area for cross-border commerce, in this case digitized points towards e-commerce. Such zones benefit from special tax benefits and regulations
2. China has a multi-level administrative division system from provincial level to village level. An administrative village comprises multiple individual villages. A number of administrative villages together form a township. A number of townships together form a county.
3. A county is national-level poverty stricken if it falls below the national poverty line and provincial-level poverty stricken if it falls under the provincial poverty line.

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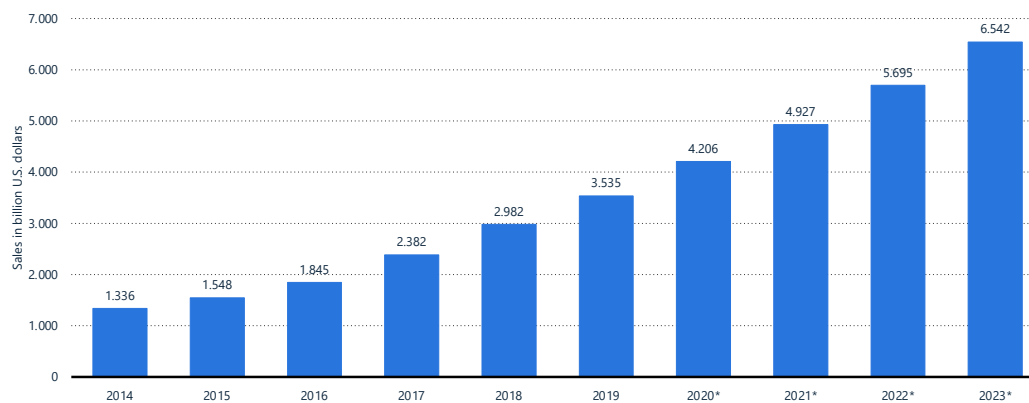
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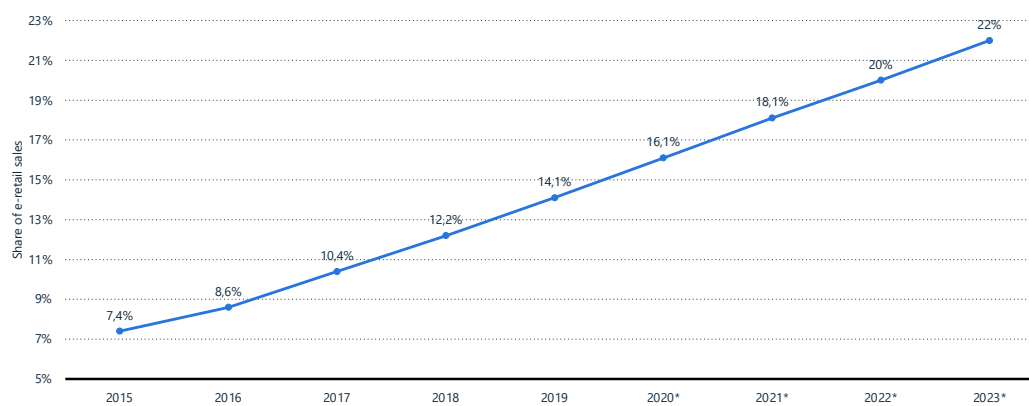
Appendix

1. Retail e-commerce sales worldwide from 2014 to 2023 (in billion U.S. dollars)



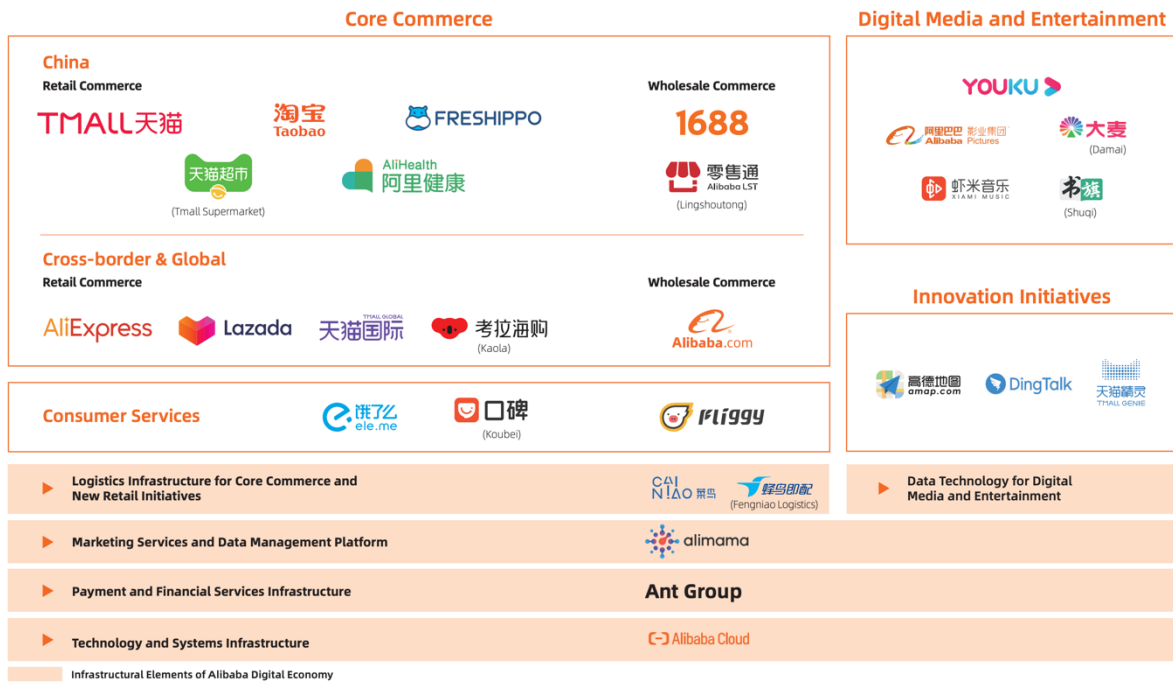
Source: Statista, 2019

2. E-commerce share of total global retail sales from 2015 to 2023



Source: Statista, 2019

3. Alibaba Ecosystem Overview



Source: Alibaba Annual Report 2020